

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

Colorado River Water Projects Enterprise )  
of the Colorado River Water Conservation District )

Project No. \_\_\_\_\_

**APPLICATION FOR PRELIMINARY PERMIT  
FOR THE PROPOSED  
RITSCHARD DAM UNIT WATER POWER PROJECT**

Colorado River Water Projects Enterprise  
of the Colorado River Water Conservation District  
P.O. Box 1120  
201 Centennial Street, Suite 200  
Glenwood Springs, CO 81602

**Section 4.32  
As Applicable to  
Application for a Preliminary Permit**

The following information is submitted for compliance with section 4.32 of the Federal Energy Regulatory Commission's regulations.

- (1) Persons that will maintain the proprietary right necessary to construct, operate, or maintain the project:

Colorado River Projects Enterprise  
of the Colorado River Water Conservation District  
P.O. Box 1120  
201 Centennial Street, Suite 200  
Glenwood Springs, Colorado 81602

Telephone number 970-945-8522  
Fax number 970-945-8799

- (2)(i) Counties in which any part of the proposed development would be located:

Grand County  
c/o Lurline Underbrink-Curran,  
Grand County Commissioners  
308 Byers Avenue  
Hot Sulphur Springs, CO 80451

- (2)(ii) City, town, or other local political subdivision in project vicinity:

Town of Kremmling  
c/o Don VanWomer  
Town Manager  
200 Eagle Ave.  
Box 539  
Kremmling, CO 80459

- (2)(iii) Irrigation districts, drainage districts, or other special purpose political subdivisions in project vicinity:

Middle Park Water Conservancy District  
P.O. BOX 500  
Granby, CO 80446-0500

- (2)(iv) Other government agencies and political subdivisions that may have an interest are listed on Table 4.32-1:

- (2)(v) There are no Indian Tribes affected by this project.

Assembly. The River District's Organic Act (C.R.S. §§ 37-46) contains both a legislative declaration and provisions enumerating specific powers. The Organic Act is included in this preliminary permit application as Attachment A. The Colorado River Water Projects Enterprise is a "government owned business" as referred to in Colorado Constitution Article 10, Section 20. Article 10 is included as Attachment B.

- (5) The proposed term of the requested permit is 36 months.
- (6) The Ritschard Dam is an existing dam that impounds Wolford Mountain Reservoir (aka Muddy Creek Reservoir). Both the dam and the reservoir are owned and operated by the Colorado River Projects Enterprise of the Colorado River Water Conservation District.

The following Exhibits are included with this application for a preliminary permit:

| <u>Exhibit</u> | <u>Title</u>                     |
|----------------|----------------------------------|
| 1              | Project Description              |
| 2              | Description of Studies           |
| 3              | Statement of Costs and Financing |
| 4              | Project Maps                     |

The following supplemental information is included with this application for a preliminary permit:

|              |                                                                   |
|--------------|-------------------------------------------------------------------|
| Attachment A | Colorado River Water Conservation District Organic Act (Excerpts) |
| Attachment B | Colorado Constitution, Article X, Section 20                      |

**BEFORE THE FEDERAL ENERGY REGULATORY  
COMMISSION**

*Application for a Preliminary Permit*

- (1) The Colorado River Water Conservation District acting by and through the Colorado River Water Projects Enterprise applies to the Federal Energy Regulatory Commission for the proposed Ritschard Dam Unit water power project, as described in the attached exhibits. This application is made in order that the applicant may secure and maintain priority for a license for the project under Part I of the Federal Power Act while obtaining the data and performing the acts required to determine the feasibility of the project and to support an application for a license.

- (2) The location of the proposed project is:

|                                |                                            |
|--------------------------------|--------------------------------------------|
| State or Territory:            | Colorado                                   |
| County:                        | Grand                                      |
| Township or Nearby Town:       | Kremmling                                  |
| Stream or other body of water: | Muddy Creek and Wolford Mountain Reservoir |

- (3) The exact name, business address, and telephone number of the applicant are:

Colorado River Water Projects Enterprise  
of the Colorado River Water Conservation District  
P.O. Box 1120  
201 Centennial Street, Suite 200  
Glenwood Springs, Colorado 81602

Telephone number 970-945-8522  
Fax number 970-945-8799

- (4) The exact name and business address of each person authorized to act as agent for the applicant in this application are:

R. Eric Kuhn, Secretary/General Manager  
P.O. Box 1120  
201 Centennial Street, Suite 200  
Glenwood Springs, Colorado 81602

Telephone number 970-945-8522

The Colorado River Water Conservation District (District) is a municipality and is claiming preference under section 7(a) of the Federal Power Act. The District is a political subdivision of the State of Colorado created in 1937 by the State General

## Subscription and Verification

This application is executed in the state of Colorado, Garfield county, by

R. Eric Kuhn, Secretary/General Manager  
Colorado River Water Conservation District  
P.O. Box 1120  
201 Centennial Street, Suite 200  
Glenwood Springs, Colorado 81602

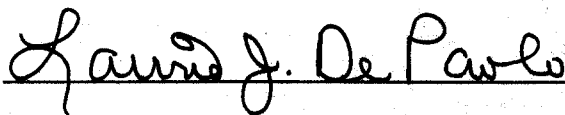
being duly sworn, depose(s) , and say(s) that the contents of this application are true to the best of his knowledge or belief. The undersigned applicant has signed the application this 5<sup>th</sup> day of February, 2001.

Signed

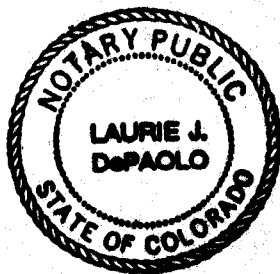


R. Eric Kuhn

Attest



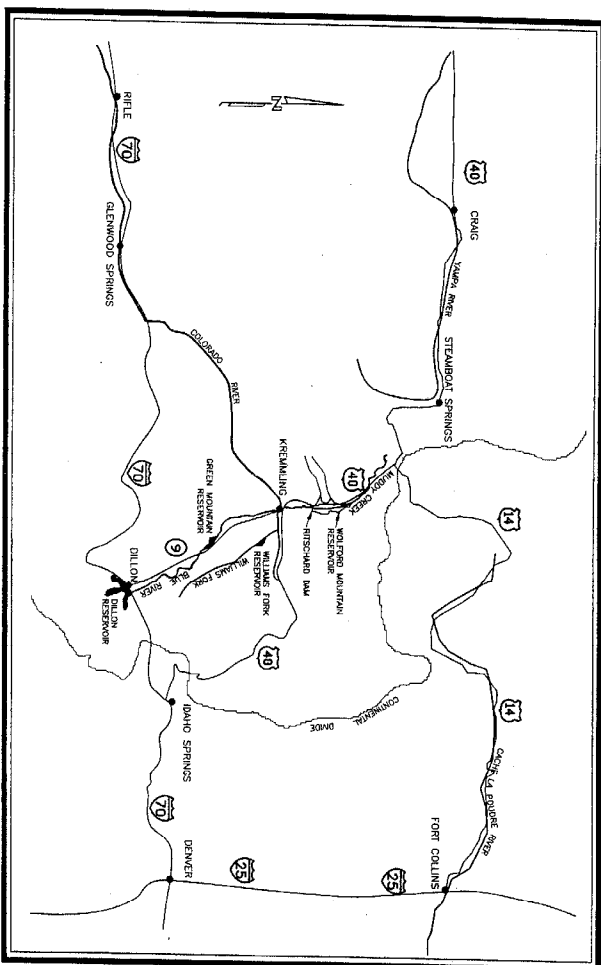
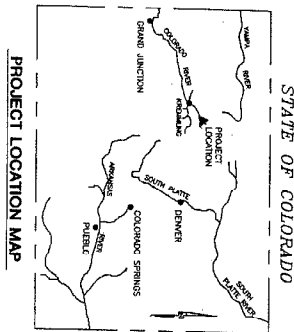
Seal/



My Commission expires  
October 17, 2001



# CONSTRUCTION PLANS FOR RITSCHARD DAM WATER DIVISION 5 - (FORMER) DISTRICT 50



COLORADO RIVER WATER CONSERVATION DISTRICT  
GRAND COUNTY, COLORADO

1991

DESIGNED BY: HAZZA ENGINEERING COMPANY  
DENVER, COLORADO

| NO. | DATE    | REVISIONS |
|-----|---------|-----------|
| 1   | 10/1/81 | REVISIONS |
| 2   | 10/1/81 | REVISIONS |
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| 99  | 10/1/81 | REVISIONS |
| 100 | 10/1/81 | REVISIONS |

MAP 1

PROJECT  
LOCATION

I HEREBY CERTIFY THAT THESE DRAWINGS FOR THE CONSTRUCTION OF THE RITSCHARD DAM WERE PREPARED BY ME (OR UNDER MY DIRECT SUPERVISION) FOR THE OWNERS THEREOF.

*Boyle, H. Taylor*  
GOVERNOR H. TAYLOR  
BOYLE ENGINEERING CORPORATION

I HEREBY CERTIFY THAT THESE DRAWINGS FOR THE CONSTRUCTION OF THE RITSCHARD DAM WERE PREPARED BY ME (OR UNDER MY DIRECT SUPERVISION) FOR THE OWNERS THEREOF.

*David E. Linder*  
DAVID E. LINDER  
HAZZA ENGINEERING COMPANY

AS OWNERS THEREOF WE HEREBY ACCEPT AND APPROVE THESE DRAWINGS FOR THE CONSTRUCTION OF RITSCHARD DAM.  
*David M. Linder*  
DATE 10/1/81

STATE ENGINEER  
DEPUTY

THESE DRAWINGS MAY NOT BE MATERIALLY CHANGED IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF THE STATE ENGINEER.

THESE DRAWINGS REPRESENT THE AS-CONSTRUCTED CONDITIONS OF THE RITSCHARD DAM TO THE BEST OF OUR KNOWLEDGE AND JUDGMENT OF THE 11th DAY OF 1981.

GOVERNOR H. TAYLOR  
DATE 10/1/81  
DAVID E. LINDER







## **EXHIBIT 4**

### **Project Maps**

- (1) Map 1 Project Location and Vicinity Map
- (2) Map 2 Locations of Principal Project Features
- (3) Map 3 Project Boundaries
- (4) There are no areas within or in the vicinity of the project boundaries that are designated for inclusion in the National Wild and Scenic Rivers System.
- (5) There are no areas within or in the vicinity of the project boundaries that are under the provisions of the Wilderness Act, have been designated as wilderness areas, recommended as wilderness areas, or designated as wilderness study areas.

## **EXHIBIT 3**

### **Statement of Costs and Financing**

#### **(1) Costs for studies**

It is expected that the costs for studies over the period of the preliminary permit application will be approximately \$200,000. The studies will support the final application and are expected to include, but not be limited to, project engineering, environmental evaluations, and overall project feasibility.

#### **(2) Expected Sources and extent of financing to carry out the studies**

The project will be financed through the Colorado River Water Project Enterprise (the Enterprise) of the Colorado River Water Conservation District. Through the specific powers declared in Organic Act (Attachment A), Article X, Section 20 of the State Constitution (Attachment B), and through resolution adopted by the River District's Board of Directors, the River District Enterprise is authorized to enter into contracts, fund water supply and water resource projects, complete studies and engineering to support water projects, and all other contractual and financial aspects of the proposed hydroelectric project. The Enterprise has the authority to issue revenue bonds to fund water resource projects.

The Enterprise holds cash equivalent assets of approximately \$19,000,000 that may in part be utilized for project study and construction.

#### **(3) Description of the proposed market for power**

Prospective purchasers for the power produced at the project include Excel Energy of Colorado, Holy Cross Energy, and Mountain Power Rural Electric Association. It is anticipated that the project will be eligible for benefits as a small power production facility under section 210 of PURPA.

## Hydrology

*Supplementary Hydrology Technical Report for Muddy Creek Reservoir.* Fort Collins, CO: Resource Consultants Inc., August 21, 1989.

Tomlinson, Edward M. and Mark Solak, *Site-Specific Probable Maximum Precipitation (PMP) Study of the Muddy Creek Drainage Basin*, NAWC Report AR 94-4, Project Number 17207. Salt Lake City, UT: North American Weather Consultants / TRC Environmental Corporation, October 1994.

*Wolford Mountain Reservoir Substitution Agreement Hydrology Report.* RCE Ref. No. 92-809. Fort Collins, CO: Resource Consultants Inc., December 18, 1992.

## Permitting

*Permit No. 199000127.* U.S. Army Corps of Engineers, Sacramento Office. Fully Executed 404 Permit. May 11, 1992.

*Record of Decision and Plan Amendment for the Muddy Creek Reservoir, Right-of-way C-45805.* Kremmling, Colorado. February 8, 1991.

*Resolution of the Grand County Permit Authority Pursuant to Board of County Commissioner Resolution no. 1978-5-4. Resolution No. 1990-6-4. A Resolution Granting to the Colorado River Water Conservation District a Permit to Engage in an Activity Previously Designated as an Activity of State Interest Pursuant to the Board of County Commissioners of Grant County Resolution No. 1978-5-4.* State of Colorado, County of Grand. June 5, 1990.

*Right-of-Way Grant COC-45805 Issued.* U.S. Department of the Interior, Bureau of Land Management, June 17, 1991.

*Section 401 Water Quality Certification.* State of Colorado, Colorado Department of Health, 1990.

Table Exhibit 2-1: Studies Completed for Construction of Ritschard Dam

Engineering

*As-Constructed Drawings for the Ritschards Dam, Water District 5.* Denver, CO: Boyle Engineering Company, January 1996

*Design Report Embankment Dam.* Denver, CO: Harza Engineering Co, April 1991.

*Preliminary Geologic Report for the Wolford Dam.* Grand Junction, CO: Western Engineers, February 1983.

*Revised Feasibility Study for Muddy Creek Dam and Reservoir at Site "C".* Denver, CO: Morrison-Knudsen Engineers, June 1988.

*Wolford Mountain Reservoir and Ritschard Dam Project, Geotechnical Investigation Report.* Denver, CO: Harza Engineering Company, January 1991.

*Wolford Mountain Reservoir Project Feasibility Study.* Grand Junction, CO: Western Engineers, May 1983.

Environmental

*Biological Opinions for the Muddy Creek Reservoir Project, Grand County, Colorado.* U.S. Department of the Interior. Fish and Wildlife Service, February 7, 1990.

*Endangered Fish Water Memorandum of Agreement (MOA).* Denver, CO: State of Colorado, Colorado Water Conservation Board, fully executed December 14, 1994.

*Record of Decision - Wolford Mountain (Muddy Creek) Reservoir Final Environmental Impact Statement Rock Creek/Muddy Creek Reservoir.* U.S. Bureau of Reclamation. December 23, 1991.

*Rock Creek/Muddy Creek Reservoir Draft Environmental Impact Statement.* Lakewood, CO: United States Forest Service, Rocky Mountain Region. August 1987.

*Rocky Creek/Muddy Creek Reservoir Final Environmental Impact Statement.* Lakewood, CO: United States Forest Service, Rocky Mountain Region, February 1990.

*Rocky Creek/Muddy Creek Reservoir Supplemental Environmental Impact Statement.* Lakewood, CO: United States Forest Service, Rocky Mountain Region, August 1988

*Supplementary Data Report to Support Selection of Preferred Alternative Rock Creek / Muddy Creek DEIS.* Fort Collins, CO: Resource Consultants Inc., March 22, 1988.

Table Exhibit 2-1: Studies Completed for Construction of Ritschard Dam (continued)

## **EXHIBIT 2**

### **Studies Supporting the Proposed Project**

**(1) General requirements**

(i) The Wolford Mountain Project was completed in 1995 following extensive study and analysis which began in the early 1980's. The fundamental studies and investigations supporting the permitting and construction of the facilities are listed at Table Exhibit 2-1.

In conjunction with the completed studies, additional studies specific to the feasibility of the hydroelectric unit will be undertaken. It is anticipated that additional engineering, economics, and environmental studies will be performed as necessary to support an acceptable application for license or exemption from licensing under the Commission's regulations.

(ii) No new roads will be completed for this project.

**(2) Work plan for new dam construction**

This section is not applicable to existing dams and therefore, is not included.

Table Exhibit 1-1: Description of the Lands of the United States Enclosed within the Project Boundaries

BLM Right-of Way C-45805  
Muddy Creek Reservoir

Dam (91 acres)

T. 2N., R. 81W.

Sec. 25, S 1/2 NE 1/4, SE 1/4 NW 1/4, NE 1/4 SW 1/4, N1/2 SE 1/4

Reservoir (440 acres)

T. 2N., R. 80W.

Sec. 6, Lots 12, 19, 20

Sec. 7, Lots 8, 9, 14-17

Sec. 18, Lots 6-9, 12-15

Sec. 19, Lots 6-8, 13

T. 2N., R. 81W.

Sec. 1, Lots 5, 6, 10, 11

Sec. 2, Lots 13, 14

Sec. 13, W 1/2 SW 1/4, SE 1/4 SW 1/4

Sec. 24, E 1/2 W 1/2, SW 1/4 NW 1/4, SW 1/4 SW 1/4, SE 1/4 SE 1/4

Sec. 25, E 1/2 NE 1/4, SW 1/4 NE 1/4, E 1/2 NW 1/4

T. 3N., R. 81W.

Sec. 25, SE 1/4 SW 1/4

Roads (10,300' X 50', 11.8 acres)

T. 1 1/2N., R. 80W.

Sec. 31, Lots 3, 4

T. 2N., R. 81W.

Sec. 25, S 1/2 N 1/2, N 1/2 S 1/2

Sec. 26, SE 1/4 NE 1/4

Parking Area (300' x 300', 2 acres)

T. 2N., R. 81W

Sec. 25, SE 1/4 NW 1/4

Pipelines (6,200' x 30', 4.3 acres)

T. 2N., R. 80W.

Sec. 31, Lots 7, 9

T. 2N., R. 81W.

Sec. 25, SW 1/4 NE 1/4, N 1/2 SE 1/4, SE 1/4 SE 1/4

Ditches (6,900' x 50', 7.9 acres)

T. 1 1/2N., R. 80W.

Sec. 31, Lot 3

T. 1N., R. 80W.

Sec. 5, Lot 8, SW 1/4 SW 1/4

Sec. 6, Lots 2, 3, SW 1/4 NE 1/4, NW 1/4 SE 1/4, SE 1/4 SE 1/4

The outlet works consist of a three level outlet works tower with a main sluice gate, a 96 inch diameter concrete encased steel conduit, and 54 inch fixed cone valve house inside the control house/terminal structure. The outlet gates on the tower are at elevations of 7460, 7440, and 7420 ft with the main sluice gate at 7378 feet. The conduit is approximately 800 ft long passing beneath the dam. The cone valve can facilitate a drawdown of 5 feet in the reservoir in 5 days when the reservoir is at full pool.

### Powerhouse

The proposed powerhouse and appurtenant structures are the only project facilities that are not presently constructed. The power house will be located adjacent to the existing control house/terminal structure.

#### (1) Pertinent reservoir data

|                  | Elevation<br>(ft. msl) | Storage Volume<br>(acre-ft) | Surface Area<br>(acres) |
|------------------|------------------------|-----------------------------|-------------------------|
| Normal reservoir | 7489                   | 65,985                      | 1550                    |
| Maximum          | 7500                   | 84,660                      | ~1800                   |
| Minimum          | 7430                   | 10,490                      | 504                     |

#### (2) Interconnections to primary transmission lines

The project's primary transmission line will extend from the power house to a point of interconnection with either of two existing transmission lines. A 115 kv transmission line owned by Mountain Parks REA was relocated during construction of the dam and is buried in the dam crest. The project's transmission line would be approximately 400 feet in length and would be of sufficient capacity to carry the output of the unit. The second possibility is to interconnect with a 230 kv transmission line owned by Tri-State Generating and Transmission that is located approximately 1/4 mile from the project.

#### (3) Estimated energy production

The total average annual energy production for the proposed project is estimated to be 4,000,000 kwh and the installed capacity is 840 kilowatts. The hydraulic head for estimating capacity and energy output is 80 feet. A single turbine and generator would be purchased and installed with a rated capacity of 840 kilowatts.

#### (4) Description of lands of the United States enclosed within the proposed project boundaries

In April 1991, the District received from the United States Department of Interior Bureau of Land Management rights-of-way for those portions of the Wolford Reservoir (aka Muddy Creek Reservoir) and dam that were located on lands of the United States (BLM right-of-way C-45805). The lands of the United States enclosed within the project boundaries are provided on Table 1. All other lands were purchased from private land owners.

#### (5) No other information is currently available.

## EXHIBIT 1

### General Description of the Project

#### (1) General configuration

The Wolford Mountain Reservoir (aka Muddy Creek Reservoir) and Ritschard Dam is an existing facility located on Muddy Creek about four miles upstream of the confluence of the Muddy Creek and the Colorado River near Kremmling, Colorado (see Exhibit 4, Map 1). The dam construction was completed in 1995. All existing facilities are in excellent condition.

Structures associated with the project are briefly described below:

#### Ritschard Dam

The dam is a central impervious core earth-rock dam with a 25 ft wide crest at elevation 7500 and a slope of 3H:1V on the upstream and a 2.5H:1V on the downstream. The central core is 10 ft wide at the top with a slope of 1H:4V, upstream and downstream. Chimney filter and drain flank the core on the downstream side. A 10 ft wide zone of terrace gravel serves as transition between the shell material on the downstream. On the upstream side of the core a 4 ft wide processed -3/4 inch terrace gravel serves as filter while a 20 ft wide zone of weathered shale serves as transition between the filter and the shale shell material. The seepage water collected by the downstream filter/drain system is carried away by drain pipes located on both sides of the valley floor under the downstream side shell.

The dam shell consists of weathered and fresh shale obtained from the excavation for the spillway and dam. A 3 ft thick riprap underlain by a 40 ft wide zone of unweathered shale forms the upstream slope protection. A 15 inches thick layer of processed +3/4 inch terrace gravel protects the the downstream slope.

#### Spillway and Stilling Basin

The spillway consists of a concrete service spillway and a three stage fuse plug type emergency spillway. The service spillway is an ogee crested concrete structure 135 ft wide at the crest and approximately 600 ft long. The crest is at elevation 7489 ft and the elevation at the stilling basin is at 7355 feet. The service spillway can pass 17,505 cfs at a head of 9 feet. The emergency spillway crest is at elevation 7500 feet. The emergency spillway consists of a three stage fuse plug constructed on a concrete foundation. When the head on the emergency spillway reaches 9 feet, the fuse plug stages are designed to erode. When all three stages are engaged, the capacity of the emergency spillway is 44,432 cubic feet per second. The emergency spillway discharges into a rock and weathered rock channel approximately 500 ft wide with 2.5H:1V side slopes and a centerline channel slope of 0.0657.

The stilling basin is approximately 1.3 acres in area with 2.5H:1V side slopes and a bottom elevation of 7355 feet.

#### Outlet Works



Table 4.32-1: Section 4.32 (2)(iv) - Other Political Subdivisions in the Gneral Area of the Project

| <b>Federal Agencies</b>                                 | <b>Contact</b>                                                                                            |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| United States Fish and Wildlife Service                 | Dr. Ralph O. Morganweck<br>U.S. Fish and Wildlife Service, Region 6<br>P.O. Box 25486<br>Denver, CO 80225 |
| United States Geological Survey                         | William Horak, District Chief<br>Mail Stop 415, USGS<br>Box 25046, DFC, Bldg. 53<br>Lakewood, CO 80225    |
| Bureau of Reclamation                                   | Brian Person, Eastern Area Projects Office<br>11056 W. County Road 18E<br>Loveland, CO 80537              |
| Environmental Protection Agency                         | Dave Ruiter<br>999 18 <sup>th</sup> Street, Suite 500<br>Denver, CO 80202-2405                            |
| <b>State Agencies</b>                                   | <b>Contact</b>                                                                                            |
| Colorado Department of Natural Resource                 | Kent Holsinger, Assistant Director<br>1313 Sherman Street, Rm 718<br>Denver, CO 80203                     |
| State Engineer's Office                                 | Hal Simpson, State Engineer<br>1313 Sherman Street<br>Room 818<br>Denver, CO 80203                        |
| Colorado Water Conservation Board                       | Rod Kuharich, Executive Director<br>1313 Sherman Street<br>Room 721<br>Denver, CO 80203                   |
| Colorado Department of Wildlife                         | Bruce McCloskey, DOW Deputy Director<br>6060 Broadway<br>Denver, CO 80216                                 |
| Colorado Department of Outdoor Recreation               | Lori Matthews, Director<br>1313 Sherman Street, RM 618<br>Denver, CO 80203                                |
| Colorado Water Quality Control Division                 | Dave Holm, Executive Director<br>4300 Cherry Creek Drive South<br>Denver, CO 80246-1530                   |
| Colorado Water Resource and Power Development Authority | Dan Law, Executive Director<br>1580 Logan Street, Suite 620<br>Denver, CO 80203-1942                      |